

NON-PUBLIC?: N  
ACCESSION #: 8903290026  
LICENSEE EVENT REPORT (LER)

FACILITY NAME: RIVER BEND STATION PAGE: 1 OF 3

DOCKET NUMBER: 05000458

TITLE: Reactor Scram Due to an IRM Upscale Trip Caused by a Sudden Increase  
Flow Due to Improper Feedwater Valve Response While Adding Steam Loads  
During Reactor Startup

EVENT DATE: 02/20/89 LER #: 89-007-00 REPORT DATE: 03/20/89

OPERATING MODE: 2 POWER LEVEL: 002

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR  
SECTION

50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:

NAME: L. A. England,

Director - Nuclear Licensing TELEPHONE: 504-381-4145

COMPONENT FAILURE DESCRIPTION:

CAUSE: E SYSTEM: SJ COMPONENT: FCV MANUFACTURER: B045

REPORTABLE TO NPRDS: Y

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

At 0153 on 2/20/89 with the unit in Operational Condition 2 with reactor power in the IRM range and during a reactor startup from a controlled shutdown, a reactor scram occurred due to an intermediate range monitor (IRM) upscale trip. The IRM upscale was caused by excessive feedwater which decreased the moderator temperature and induced positive reactivity. Contributing to this event was the placing of steam drains in service by Operations. As each drain was placed in service, Operations was allowing reactor pressure and level to stabilize. After opening the fourth drain in a series of four, a feedwater transient occurred causing the reactor scram. Upon investigation it was discovered that during this time frame the startup feed water regulator valve was not responding properly due to numerous air leaks in the valve operator. The air leaks caused the valve to have a sluggish response.

Reactor Startup Operating Procedure GOP-001 has been changed to now require a steam bypass valve to be open approximately 50 percent prior to placing steam

drains in service. This will allow additional margin to compensate for the decrease in reactor pressure if a rapid increase in feedwater flow occurs.

There was no impact on the safe operations of the plant or to the health and safety of the public.

END OF ABSTRACT

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#### REPORTED CONDITION

At 0153 on 2/20/89, with the unit in Operational Condition 2 with the reactor power in the intermediate range monitor (IRM) range and during a reactor (\*RCT\*) startup from a controlled shutdown, a reactor scram occurred due to an intermediate range monitor IRM (\*IG\*) upscale trip. This upscale trip resulted from increased sudden feeding of feedwater into the reactor vessel causing a rapid positive reactivity addition to the core. Prior to the scram, the startup feedwater regulator valve (\*FCV\*) was in automatic, controlling the water level at 37" narrow range. The Reactor Startup Procedure (GOP-001) was at the point where additional reactor steam loads were being added. Between each addition of a new steam load, the reactor water level was allowed to stabilize. Three 3" drains (\*DRN\*) (steam loads) had been successfully opened and the water level was allowed to return to normal each time. However, after opening the fourth 3" drain, the level appeared to have dipped further than at the previous drain opening. Because of reactor level and pressure reductions, additional steam voids formed in the reactor core and reactor power began to decrease. The reactor operator continued withdrawing control rods (\*ROD\*) to maintain reactor pressure and down ranging the IRM's to prevent rod blocks. The upscale trip occurred when the startup feedwater regulator valve opened rapidly, causing a rapid increase in feedwater flow which in turn caused the addition of positive reactivity to the core. This incident is being reported pursuant to 10CFR50.73 (a)(2)(iv).

#### INVESTIGATION

Maintenance Work Order (MWO) 133744 was written to investigate control problems with the startup (S/U) feedwater regulator valve. During this investigation, it was determined that the S/U feedwater regulator valve operator had several air leaks which led to its improper response. These air leaks allowed the valve to have a sluggish response instead of a smooth, continuous response. Testing of the S/U feedwater regulator valve proved that in certain areas of the S/U valve stroke this effect was even more pronounced.

During the startup, Operations personnel were placing steam loads on the reactor which was causing a decrease in reactor pressure and small swings in

reactor water level. Reactor Startup Operating Procedure GOP-001 has been changed to now require a steam bypass valve to be open approximately 50 percent prior to placing steam drains in service. This will provide additional margin to compensate for the decrease in reactor pressure if a rapid increase in feedwater flow occurs.

A review of previously submitted LERs has revealed five other incidents involving either a reactor scram or an RPS actuation in conjunction with an IRM upscale reading or an IRM spike. None of them

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involved the combined elements of placing drains in service, air leaks in the feedwater regulator valve causing irregular response and an IRM upscale trip. The LERs reviewed include 85-047, 86-042, 87-015, 87-034 and 89-006.

#### CORRECTIVE ACTION

Maintenance Work Order (MWO) 133744 was completed to repair the air leaks associated with the startup feedwater regulator valve.

Operations has revised the startup procedure (GOP-001) to require a bypass valve to be open approximately 50 percent prior to placing steam drains in service.

#### SAFETY ASSESSMENT

There was no impact on the safe operations of the plant or to the health and safety of the public. The plant was secured and placed in a safe condition by the operator taking manual control of the water level and returning the reactor to a stable condition.

NOTE: Energy Industry Identification System Codes are identified in the text as (\*XX\*).

ATTACHMENT 1 TO 8903290026 PAGE 1 OF 1

GULF STATES UTILITIES COMPANY

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70775

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March 20, 1989

RBG- 30374

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U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555

Gentlemen:

River Bend Station - Unit 1  
Docket No. 50-458

Please find enclosed Licensee Event Report No. 89-007 for River Bend Station - Unit 1. This report is being submitted pursuant to 10CFR50.73.

Sincerely,

J. E. Booker  
Manager-River Bend Oversight  
River Bend Nuclear Group

JEB/TFP/AOF/JHM/ch

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